

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A method of monitoring the condition of a pump the method comprising the steps of:

generating a predetermined test condition in the pump, comprising generating and sustaining for a substantial period of time an abnormal pump speed outside a range of normal pump operation speed whereby the pump is subject to an increased stress as compared with normal operating stresses, thereby causing a reduction in clearance between a rotor and a stator of the pump; and

obtaining signals indicative of an amount of the clearance between the rotor and the stator of the pump during a period in which the test condition is present, wherein the signals are derived from a current consumed by a motor driving the rotor of the pump.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Previously Presented) The method as claimed in claim 1, wherein the clearance is reduced by selective control of rotational speed of the rotor.

6. (Previously Presented) The method as claimed in claim 5, wherein the reduction in clearance is caused by the steps of causing a predetermined reduction in rotor rotation speed from a selected speed for a predetermined period of time and then causing a predetermined increase in rotor rotation speed above the selected speed for a predetermined period of time.

7. (Withdrawn) The method as claimed in claim 3, wherein the pump is provided with a cooling system and the reduction in clearance is caused by controlling a rate of flow of coolant to cause a perturbation of temperature in the pump.

8. (Withdrawn) The method as claimed in claim 3, wherein the reduction in clearance is caused by increasing a gas flow rate through the pump.

9. (Withdrawn) The method as claimed in claim 1, wherein the pump is driven by an electric motor and the signals provide an indication of the current supplied to the motor.

10. (Withdrawn) The method as claimed in claim 1, wherein the system component comprises a conduit connected with the pump, and the system condition is a condition of the conduit.

11. (Withdrawn) The method as claimed in claim 10, wherein the step of generating a predetermined test condition comprises generating a predetermined test flow rate in the conduit that is greater than a normal operating flow rate through the conduit.

12. (Withdrawn) The method as claimed in claim 11, further comprising obtaining the signals indicative of a condition of the system by means of a pressure sensor arranged to sense pressure in the conduit.

13. (Withdrawn) The method as claimed in claim 11, wherein the test flow rate in the conduit is generated by injecting a pressurized flow into the conduit.

14. (Withdrawn) The method as claimed in claim 11, wherein the test flow rate is generated by injecting a pressurized gas flow into the pump.

15. (Previously Presented) The method as claimed in claim 1, wherein the pump is equipped to store the signals.

16. (Previously Presented) The method as claimed in claim 1, wherein the signals are transmitted to a storage location via a LAN or the internet.

17. (Previously Presented) The method as claimed in claim 1, wherein the signals are analyzed to assess the condition of the pump.

18. (Withdrawn) The method as claimed in claim 17, wherein the analyzing step comprises comparing the signals with signals obtained during at least one previous predetermined test condition of the pump or system component.

19. (Withdrawn) The method as claimed in claim 17, wherein the analyzing step comprises comparing the signals with pre-programmed data.
20. (Withdrawn) The method as claimed in claim 17, wherein the analyzing step comprises comparing the signals with signals obtained from at least one other pump or like system component of another system during at least one predetermined test condition of the other pump or system component.
21. (Withdrawn) The method as claimed in claim 17, wherein the analyzing step comprises inputting the signals into an algorithm to provide a prediction of pump or system component condition.
22. (Withdrawn) The method as claimed in claim 17, wherein the analyzing step comprises inputting the signals into an algorithm to provide a prediction of pump or system component life until a predetermined condition of the pump or system component will occur.
23. (Withdrawn) The method as claimed in claim 17, wherein signals indicative of a system component condition are obtained and the analyzing step includes using the signals to predict a condition of the pump or system.

24. (Previously Presented) The method as claimed in claim 17, further comprising

providing an audible indication of the result of the analyzing step.

25. (Previously Presented) The method as claimed in claim 17, further comprising

providing a visual indication of the result of the analyzing step.

26. (Previously Presented) The method as claimed in claim 17, wherein the pump is

automatically closed down if the analyzing step indicates a predetermined condition of

the pump.

27. (Previously Presented) The method as claimed in claim 1, wherein the pump is able to

determine whether the pump is in a condition that permits testing of the pump.

28. (Previously Presented) The method as claimed in claim 27, wherein the determining

step is performed at predetermined intervals.

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Withdrawn) Apparatus as claimed in claim 31, wherein the sensing device comprises

a current sensing device for sensing current supplied to a motor that drives the pump.

33. (Withdrawn) Apparatus as claimed in claim 31, wherein the sensing device comprises a pressure sensing device for sensing a pressure in the apparatus.

34. (Withdrawn) Apparatus as claimed in claim 31, wherein the apparatus comprises a cooling system for the pump, the controller being operable to control the cooling system to generate a the predetermined test condition.

35. (Cancelled)

36. (Withdrawn) Apparatus as claimed in claim 31, wherein the apparatus comprises a source of pressurized gas and the controller is able to cause a flow of gas from the source to generate the predetermined test condition.

37. (Withdrawn) Apparatus comprising a pump, a controller, an exhaust conduit extending from the pump, a sensing device for sensing a condition in the conduit, a connection associated with the pump or conduit for connecting the pump or conduit with a source of pressurized gas and valving for controlling flow of the gas into the pump or conduit, the controller being able to control the valving to selectively admit the gas into the pump or conduit so as to generate a predetermined test condition in the conduit and the sensor providing signals indicative of the condition in the conduit when the test condition is generated.

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38. (Withdrawn) Apparatus as claimed in claim 37, wherein the sensing device comprises a pressure sensor for sensing gas pressure in the conduit.

39. (Withdrawn) Apparatus as claimed in claim 37, wherein the controller is a controller for the pump.

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)